

**WHAT IS CLAIMED IS:**

1. For use in association with a backplane of an item of electronic equipment wherein said backplane comprises a common control bus, a system for the on-line insertion of a line replaceable unit into said backplane, said system comprising:
  - 5 a primary master controller inserted into said backplane,
  - 6 said primary master controller capable of communicating via said
  - 7 common control bus of said backplane with said line replaceable
  - 8 unit when said line replaceable unit is inserted into said
  - 9 backplane;
  - 10 wherein said line replaceable unit does not have full
  - 11 access to said backplane when said line replaceable unit is first
  - 12 inserted into said backplane; and
  - 13 wherein said primary master controller is capable of
  - 14 causing said line replaceable unit to have full access to said
  - 15 backplane.
- 1 2. The system as set forth in Claim 1 wherein said primary
- 2 master controller is capable of determining whether said line
- 3 replaceable unit that is inserted into said backplane is ready for
- 4 operation.

1       3. The system as set forth in Claim 2 wherein said primary  
2 master controller is capable of downloading at least one software  
3 update to said line replaceable unit to cause said line replaceable  
4 unit to be ready for operation.

1       4. The system as set forth in Claim 1 wherein said primary  
2 master controller is capable of causing said line replaceable unit  
3 to have access to full power in said backplane.

1       5. The system as set forth in Claim 1 wherein said primary  
2 master controller comprises an interface control processor card,  
3 and wherein said line replaceable unit comprises a circuit board  
4 card.

1       6. The system as set forth in Claim 1 further comprising a  
2 secondary master controller inserted into said backplane, said  
3 secondary master controller capable of performing the functions of  
4 said primary master controller when said primary master controller  
5 is not operating.

1       7. The system as set forth in Claim 1 wherein said primary  
2 master controller is capable of disconnecting full access of said  
3 line replaceable unit to said backplane after said primary master  
4 controller has caused said line replaceable unit to have full  
5 access to said backplane.

1       8. The system as set forth in Claim 7 wherein said primary  
2 master controller is capable of disconnecting full access of said  
3 line replaceable unit to said backplane by disabling power to all  
4 but common control power sections of said line replaceable unit.

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1           9. The system as set forth in Claim 1 further comprising:  
2                   a circuit board card capable of being inserted into said  
3                   backplane, said circuit board card comprising a hot swap power / in  
4                   rush controller for regulating power to said circuit board card  
5                   when said circuit board card is first inserted into said backplane;  
6                   a card processor on said circuit board card, wherein said  
7                   card processor is capable of determining whether said circuit board  
8                   card is located in a primary master controller slot of said  
9                   backplane, in which case said circuit board card operates as a  
10                   primary master controller; and  
11                   wherein said card processor is capable of determining  
12                   whether said circuit board card is located in a secondary master  
13                   controller slot of said backplane, in which case said circuit board  
14                   card operates as a secondary master controller when said primary  
15                   master controller is not operating.

1           10. The system as set forth in Claim 1 further comprising:  
2                   a circuit board card capable of being inserted into said  
3                   backplane, said circuit board card comprising a hot swap power / in  
4                   rush controller for regulating power to said circuit board card  
5                   when said circuit board card is first inserted into said backplane;  
6                   and

7                   a card processor on said circuit board card, said card  
8                   processor capable of determining whether said circuit board card is  
9                   located in a non-master controller slot of said backplane, in which  
10                  case said circuit board card waits for said primary master  
11                  controller to cause said circuit board card to have full access to  
12                  said backplane.

1        11. For use in association with a backplane of an item of  
2 electronic equipment wherein said backplane comprises a common  
3 control bus, a method for the on-line insertion of a line  
4 replaceable unit into said backplane, said method comprising the  
5 steps of:

6                inserting a primary master controller into said  
7 backplane;

8                inserting said line replaceable unit into said backplane  
9 so that said line replaceable unit does not have full access to  
10 said backplane; and

11                controlling the access of said line replaceable unit to  
12 said backplane with said primary master controller.

1        12. The method as set forth in Claim 11 further comprising  
2 the step of:

3                determining in said primary master controller whether  
4 said line replaceable unit that is inserted into said backplane is  
5 ready for operation.

1           13. The method as set forth in Claim 12 further comprising  
2 the step of:

3           downloading to said line replaceable unit from said  
4 primary master controller at least one software update to cause  
5 said line replaceable unit to be ready for operation.

1           14. The method as set forth in Claim 11 further comprising  
2 the step of:

3           controlling the access of said line replaceable unit to  
4 full power in said backplane with said primary master controller.

1           15. The method as set forth in Claim 11 wherein said primary  
2 master controller comprises an interface control processor card,  
3 and wherein said line replaceable unit comprises a circuit board  
4 card.

1           16. The method as set forth in Claim 11 further comprising  
2 the step of:

3           using a secondary master controller to perform the  
4 functions of said primary master controller when said primary  
5 master controller is not operating.

1           17. The method as set forth in Claim 11 further comprising  
2       the step of:

3 causing said primary master controller to disconnect full  
4 access of said line replaceable unit to said backplane by disabling  
5 power to all but common control power sections of said line  
6 replaceable unit.

1        18. For use in association with a backplane of an item of  
2 electronic equipment wherein said backplane comprises a common  
3 control bus, a method for the on-line insertion of a line  
4 replaceable unit into said backplane, said method comprising the  
5 steps of:

6                inserting a circuit board card into said backplane;  
7                providing a controlled power ramp up to said circuit  
8                board card;  
9                determining whether a voltage rail has failed;  
10                starting a reset timer;  
11                running a power on self test on said circuit board card;  
12                determining whether said circuit board card passed said  
13                power on self test; and  
14                activating a common control bus.

1           19. The method as set forth in Claim 18, said method further  
2 comprising the steps of:

3           determining whether said circuit board card is in a  
4 master slot of said backplane;

5           determining whether said circuit board card is a primary  
6 master controller if said circuit board card is in a master slot of  
7 said backplane;

8           operating said circuit board card as a primary master  
9 controller if said circuit board card is a primary master  
10 controller;

11           determining whether said circuit board card is a  
12 secondary master controller if said circuit board card is in a  
13 master slot of said backplane; and

14           operating said circuit board card as a secondary master  
15 controller if said circuit board card is a secondary master  
16 controller.

1           20. The method as set forth in Claim 18, said method further  
2 comprising the steps of:

3           determining that said circuit board card is not in a  
4 master slot of said backplane;

5           waiting for a primary master controller to interrogate  
6 said circuit board card;

7           configuring said circuit board card with said primary  
8 master controller;

9           activating said circuit board card with said primary  
10 master controller; and

11           operating said circuit board card in normal operation.